

**PROPOSITION 13
2003 URBAN WATER CONSERVATION GRANT
PROPOSAL FOR**

**Commercial, Industrial and Institutional
Direct Install
Zero-Water Consumption
Urinal Replacement Project**

and

**Commercial and Industrial
Direct Install
Low-Flow Pre-Rinse
Spray Nozzle Replacement Project**

**Submitted by
El Dorado Irrigation District
December 3, 2002**

Application Part A — Project Description, Organizational, Financial and Legal Information

A-1 Urban Water Conservation Grant Application Cover Sheet

1. Applicant (Organization or affiliation): El Dorado Irrigation District
2. Project Title:
 - 1) CII Direct Install Zero-Water Consumption Urinal Replacement Project
 - 2) CII Direct Install Low-Flow Pre-Rinse Spray Nozzle Replacement Project
3. Person authorized to sign and submit proposal:

| | |
|------------------------|---|
| Name, Title | Ane D. Deister, General Manager |
| Mailing address | 2890 Mosquito Road Placerville, CA 95667 |
| Telephone | (530) 642-4041 |
| Fax | (530) 626-5990 |
| E-mail | adeister@eid.org |
4. Contact person (if different):

| | |
|------------------------|--|
| Name, Title | Dee Brookshire, MBA, CGFM Director of Finance and Management Services |
| Mailing address | 2890 Mosquito Road Placerville, CA 95667 |
| Telephone | (530) 642-4005 |
| Fax | (530) 626-5990 |
| E-mail | dbrookshire@eid.org |
5. Funds requested (dollar amount): \$297,000
6. Applicant funds pledged (local cost share) (dollar amount): \$ 68,000
7. Total project costs (dollar amount): \$365,000
8. Estimated net water savings (AF/year): Yrs 1 to 7 - 117AF, Yrs 8 to 20 - 84AF

| | |
|--|------------------------------------|
| Estimated total amount of water to be saved (acre-feet): | |
| Years 1 through 7 | 702AF |
| Years 8 through 20 | 1,092AF |
| Over 20 years | 1,794AF |
| Benefit/cost ratio of project for applicant: | Project 1) 3.06 Project 2) 5.96 |
| Estimated \$/acre-feet of water to be saved: | \$30.08AF |
9. Project life (month/year to month/year): 07/01/2003 through 6/30/2006
10. State Assembly District where the project is to be conducted: 4th
11. State Senate District where the project is to be conducted: 1st
12. Congressional District(s) where the project is to be conducted: 4th
13. County where the project is to be conducted: El Dorado
14. Do the actions in this application involve physical changes in land use, or potential future changes in land use? B) No

A-2 Application Signature Page

By signing below, the official declares the following:

The truthfulness of all representations in the application;

The individual signing the form is authorized to submit the application on behalf of the applicant;

The individual signing the form read and understood the conflict of interest and confidentiality section and waives any and all rights to privacy and confidentiality of the application on behalf of the applicant; and

The applicant will comply with all terms and conditions identified in this Application Package if selected for funding.

Signature

Ane D. Deister, General Manager

Date

A-3 Application Checklist

Complete this checklist to confirm all sections of this application package have been completed.

Part A: Project Description, Organizational, Financial and Legal Information

- ☒ A-1 Urban Water Conservation Grant Application Cover Sheet
- ☒ A-2 Application Signature Page
- ☒ A-3 Application Checklist
- ☒ A-4 Description of project
- ☐ A-5 Maps
- ☒ A-6 Statement of work, schedule
- ☒ A-7 Monitoring and evaluation
- ☒ A-8 Qualification of applicant and cooperators
- ☒ A-9 Innovation
- ☒ A-10 Agency authority
- ☐ A-11 Operation and maintenance (O&M)

Part B: Engineering and Hydrologic Feasibility (construction projects only)

- ☐ B-1 Certification statement
- ☐ B-2 Project reports and previous studies
- ☐ B-3 Preliminary project plans and specifications
- ☐ B-4 Construction inspection plan

Part C: Plan for Environmental Documentation and Permitting

- ☐ C-1 CEQA/NEPA
- ☐ C-2 Permits, easements, licenses, acquisitions, and certifications
- ☐ C-3 Local land use plans
- ☐ C-4 State and local statutes and regulations

Part D: Need for Project and Community Involvement

- ☒ D-1 Need for project
- ☒ D-2 Community involvement, support, opposition

Part E: Water Use Efficiency Improvements and Other Benefits

- ☒ E-1 Water use efficiency improvements
- ☒ E-2 Other project benefits

Part F: Economic Justification, Benefits to Costs Analysis

- ☒ F-1 Net water savings
- ☒ F-2 Project budget and budget justification
- ☒ F-3 Economic efficiency
- ☒ Benefit/Cost Analysis Tables 1; 2; 3; 4a, 4b, 4c, 4d; and 5

A-4 Description of Project

El Dorado Irrigation District (EID) is planning two simultaneous Commercial, Industrial and Institutional (CII) water efficiency projects that will begin implementation on July 1, 2003, continuing through June 30, 2006. The first project is the CII Zero-Water Consumption Urinal Installation Project that targets the replacement of older, pre-1992, water-fed urinals with newer technology waterless urinals. The second project is the installation of low-flow, high-efficient pre-rinse spray nozzles/valves that are used in commercial kitchens in the Food Service Industry. The ultimate goal of both projects is to save 1,800 acre-feet (AF) of consumptive water over a twenty-year span.

The Zero-Water Consumption Urinal Installation Project offers CII customers the opportunity to obtain and install new zero-water consumption urinals at no charge. During the first year, the project targets the Institutional segment of CII customer accounts, such as schools, churches, hospitals and government facilities. In the two subsequent years Industrial and Commercial accounts will be targeted. The District will coordinate the purchase and installation of 900 urinals, targeting the replacement of 300 urinals per year over the three (3) year period. The estimated cost for the purchase and installation of one waterless urinal is projected at \$300. The District will utilize its existing voucher/rebate system that is currently in place. The projected annual water savings for this project is 27 million gallons or 84 acre-feet (AF) per year, with the potential overall water savings of 1,600AF over a twenty-year period.

The second CII project is the installation of 150 Water Efficient Pre-Rinse Spray Nozzles/Valves in the Food Service Industry, targeting Institutional and Commercial accounts. The project provides free low-flow, high-efficient pre-rinse spray nozzles/valves with installation at no charge to the customer. The goal is to incorporate the installation of free low-flow pre-rinse spray nozzles with the commercial on-site water audits. The District will utilize staff to install 50 pre-rinse nozzles per year over the project life of three (3) years. The estimated cost of one low-flow pre-rinse spray nozzle/valve is \$82.00. On average, a high-flow spray valve uses approximately 200 gallons per day of hot water requiring approximately 1.33 therms of energy per day. Once the 150 nozzles/valves are installed, the projected water savings for this project is 33 AF per year per nozzle, with the potential for a water savings of 200 AF over a seven-year period.

El Dorado Irrigation District actively supports the Best Management Practices (BMPs) of the Urban Water Management Plan of the CUWCC in a conscious effort to advocate water conservation by creating water and energy savings that provide a secured allotment for future area growth, and promoting public awareness in creative water use efficiency practices. The District is dedicated to serving customer needs for water and sewer service in a cost effective and responsible manner. EID's mission is to maintain continuous, dependable water service and a clean, healthy water supply; provide quality wastewater collection, treatment and disposal services; protect the natural environment; and ensure opportunities for quality recreation today and into the future. In 1960, EID's customer account base was 1,750. Today the number of accounts has exceeded 34,000 with a projected growth estimate of 65,000 by the year 2020.

A-5 Maps

Not applicable.

A-6 Statement of Work, Schedule

Methods, Procedures, Facilities

This proposal will have two projects running simultaneously in the Commercial, Industrial and Institutional (CII) sectors. The zero-water consumption urinal replacement program is a direct install of 900 water-fed urinals with newer technology waterless urinals. The direct install low-flow pre-rinse spray nozzle replacement program replaces 150 high-flow, low-efficient pre-rinse spray valves with new 1.6gpm or less low-flow, high efficient spray nozzles. Both projects provide the water appliances and installation at no charge to the customer.

The first year of the waterless urinal program targets the Institutional segment of customers. The two subsequent years will target Commercial and Industrial customers. Direct mailers will be sent to all CII customers encouraging participation in the programs over the three-year implementation timeline. Other promotional items will include program flyers and brochures, billing inserts, press releases, and contractor/plumbing supplier marketing programs.

The CII waterless urinal program will require the submittal of bid proposals from certified G3 licensed plumbers to purchase and install waterless urinals for EID's Commercial, Industrial and Institutional customers. A contracted plumber will be required to submit a copy of a current Plumber's Certification and Class, a copy of a current Business License, a Certificate of Insurance naming El Dorado Irrigation District as the additional insured, and a Certificate of Insurance from California State Workers Compensation Fund. Plumbers that are unable to provide all of the information noted above will not qualify for participation in this program.

Each program participant will be issued vouchers by EID that will be redeemed for a specific number of urinal installations from the contracted plumber(s), at a price contracted by EID. EID will pay the contracted plumber(s) the contracted price for each type of urinal installation. The contracted price will include the cost of a zero-water consumption urinal. There is no out-of pocket expense to the CII customer.

The pre-rinse spray nozzle replacement program will focus on the Food Service Industry targeting EID's Commercial and Institutional customers. The Office of Water Efficiency will coordinate the purchase and installations of the new pre-rinse nozzles using qualified personnel that currently conduct the District's CII water use surveys.

The project will incorporate the replacement of high-flow spray nozzle through the scheduled CII water use survey process. The customer will be given the opportunity to replace high usage low-efficient pre-rinse nozzles with new 1.6 gallons per minutes (gpm) or less low-flow high-efficient spray nozzles at no charge. Customers that do not request a water use survey will qualify for this program as well. Only replacement nozzles/valves that meet the stringent criteria set by PG&E's Food Service Technology Center (FSTC) will be installed. The standards and specifications have been developed and established by the FSTC. The maximum flow rate of the nozzles will be less than 1.6gpm as determined by the Standard Test Method developed by the FSTC. The cleaning performance of the valve will be equal to or better than the cleaning performance of the high 2.65 to 4.0gpm nozzles.

EID will initiate a competitive bid process to select the highest quality low-flow pre-rinse spray nozzle for the lowest possible cost. A minimum of two vendors will be chosen to ensure the product availability at all times. The spray nozzles will be ordered in bulk by EID and delivered to a designated EID facility. EID has an experienced and extensive inventory management program in place and does not anticipate any inventory discrepancies.

The primary objectives of these two projects is the replacement of 300 high-usage urinals and 50 high-flow, low-efficient pre-rinse spray nozzles each year for three-years with a projected annual water savings of 117 acre-feet (AF) during the first seven years and 84 AF per year through Year 2022. The projected overall total water savings is 1,800AF over the useful life of these water use appliances.

EID will administer the entire program using its existing voucher/rebate program.

A-7 Monitoring and Evaluation

Described below are the steps for monitoring and evaluating the success of the projects.

- a. The zero-water consumption urinal and low-flow pre-rinse spray nozzle replacement programs will be administered and coordinated through EID's Office of Water Efficiency.
- b. The entire program will utilize EID's existing voucher and rebate program.
- c. Program records will contain the current totals of the number of participating customers.
- d. Account information will include the account number, name and address, and type of facility, the number of urinals and spray nozzles replaced, and the water use within each CII segment.
- e. Records will contain the total number of CII waterless urinals replaced and distributed each year. This data will include participating sub-sectors and EID personnel.
- f. The total program costs per year, including labor, materials, marketing, and overhead services.
- g. Total program budgets per year.

- h. Program funding sources per year, including cost-sharing, intra-agency funding, state and federal financial assistance sources.
- i. Descriptions of the program design and implementation, including marketing and advertising method and levels, customer targeting methods, customer contact methods, use of outside services and participation tracking and follow-up.
- j. The direct install programs target a replacement of 300 high-volume water using urinals with waterless urinals in the Commercial, Industrial and Institutional (CII) sectors, and fifty (50) low-flow high-efficient spray nozzles in the Commercial and Institutional sectors each year for a three-year period.
- k. Post-site evaluations will be performed to verify proper urinal installations.
- l. Quarterly reports and reimbursement requests will be submitted to the Department of Water Resources/CalFed on a quarterly basis.

EID will perform pre and post surveys of sites receiving replacement urinals through this program. Pre-site audits and evaluation of a customer consumption history will determine average daily water use at each site. Quarterly water savings will be calculated using EID customer billing records to obtain the customer's average daily consumption after the installation of the waterless urinal.

A conservative average savings of 30,000 gallons per year per urinal is used for calculation purposes. The first year's projected annual water savings is 28 acre-feet (AF), the second year is 56 AF, and the third year is 84 AF. The potential cumulative water savings for 900 CII waterless urinals with a useful life of twenty years is 1,600 AF.

The low-flow spray nozzle direct installation program measurement and reporting will be based on field reports from EID personnel. A baseline study of water use at each food service operation will be included on the field survey form. The survey form will include the following:

- field measurements such as usage periods (ex. peak times)
- water temperatures
- actual flow rates
- types of items rinsed
- volume of chinaware, glassware, and utensils, measured in standard 20-inch by 20-inch racks or equivalent at the rinse station for both "before" and "after" installation conditions

These results will be maintained in a database format and made available for review and reporting purposes.

A conservative average water savings of 73,000 gallons per year is used per spray nozzle. The first year's projected annual water savings for 50 nozzle installations is 11 acre-feet (AF), the second year is 22 AF, and the third year is 33 AF. The potential cumulative water savings for 150 low-flow pre-rinse spray nozzles with a useful life of seven years is 200 AF. To date, there are no California Energy Commission regulations mandating that only energy-efficient spray valves may be sold or installed in California.

The proposed projects under this program could potentially create an overall water savings of 1,800 AF and energy savings of 510,000 therms during the useful life of the water appliances.

A-8 Qualifications of the Applicant and Cooperators

EID will utilize local area plumbing firms to implement the CII zero-water consumption urinal replacement program. There are several qualifying plumbing firms in the area and the amount of work each receives is dependent upon the amount of effort applied to the competition.

EID will utilize in-house water efficiency staff to implement the CII low-flow pre-rinse spray nozzle replacement program. The District's Water Auditor is a licensed and certified plumber who will conduct pre & post site surveys, data collection, and device installation and testing.

These sources will create valuable marketing potentials that will improve the overall cost-effectiveness of the program.

A-9 Innovation

El Dorado Irrigation District acknowledges that growth is inevitable and has used the proactive approach in promoting its water conservation programs. In 1977, EID was the first irrigation district in California to establish a conservation plan. The District follows the CUWCC Best Management Practices (BMPs) Memorandum of Understanding that was adopted in September 1991 to assist in formulating plans to enhance water conservation efforts. The District established "No-Waste" resolutions in 1977, 1978, 1988 and 1990 in response to water emergencies. The District designated its first water conservation coordinator in 1981. Fully metered services have been in place since 1985 and conservation pricing has been ongoing with new rate structures being adopted in 1998. Leak detection and repair efforts were funded in 1987 followed by system water audits in 1990. In 1995, free residential water use surveys, large landscape water audits, a residential plumbing retro-fit program, and CII water use surveys were established. To date, over 3,200 water-use surveys have been completed and more than 3,000 Residential Ultra Low-Flow Toilet (ULFT) rebates have been issued. In 2002, the Water Efficient Clothes Washer (WECW) rebate program was implemented and was a definite success and confirmed after the issuance of the full allotment of rebates. In 1999, the District reached an agreement with the City of Placerville to facilitate the Urban BMP Water Conservation Program to City residents. EID has been performing water use surveys and has administered the City's participation in EID's ULFT and WECW rebate programs. EID is continually aiming high into the future, and BMP 9 is the next target with the Commercial, Industrial and Institution sector as the bulls-eye.

A-10 Agency Authority

El Dorado Irrigation District was formed and operates under the California Water Code Division 11 (Irrigation District Law), 20500 et seq. The District is not required to hold an election or to obtain approval/review from any other agency upon entering into Contracts. The Board of Directors has authorized the General Manager to sign grant applications on behalf of the District (See **Appendix I**).

The District has no knowledge of any pending litigation that would impact the financial condition of the applicant, the operation of the water facilities, or its ability to complete the proposed project.

A-11 Operations and Maintenance

(Required for construction projects only, including meter installations.)

Not applicable.

Application Part B—Engineering and Hydrologic Feasibility

(Application Part B required for construction projects only, including meter installations.)

Not applicable.

B-1 Certification Statement

Not applicable.

Sample engineering feasibility certification statement

I, _____, a California registered civil engineer, have reviewed the information presented in support of this application. Based on this information, and any other knowledge I have regarding the proposed project, I find that it can be designed, constructed, and operated to accomplish the purpose for which it is planned. There is a sufficient water supply for the project. The information I have reviewed to document this statement is included *(provide list, e.g., feasibility studies, engineering design studies, water rights permits, etc.)*.

(Original signature and stamp with expiration date)

B-2 Project Reports and Previous Studies

Not applicable.

B-3 Preliminary Project Plans and Specifications

Not applicable.

B-4 Construction Inspection Plan

Not applicable.

Application Part C—Plan for Completion of Environmental Documentation and Permitting Requirements

The application must include a plan for compliance with all applicable environmental requirements. The plan should address all the potential environmental, social and economic impacts of the proposed project, including mitigation, required under the California Environmental Quality Act (CEQA) and, if applicable, the National Environmental Policy Act (NEPA). The plan should also address compliance with local, county, State, and federal permitting requirements. If this project is not subject to CEQA or NEPA, so state in this section.

C-1 California Environmental Quality Act and National Environmental Policy Act

Not applicable.

C-2 Permits, Easements, Licenses, Acquisitions, and Certifications

Not applicable.

C-3 Local Land Use Plans

Not applicable.

C-4 Applicable Legal Requirements

Not applicable.

Application Part D- Need for Project and Community Involvement

D-1 Need for the Project

El Dorado Irrigation District has 13 customer classifications that include Agricultural Metered Irrigation, Commercial/Industrial, Domestic Irrigation, Multi-Family Residential, Municipal, Recreational Turf Services, Single Family Residential and Small Farm Irrigation, and Construction Meter Potable. El Dorado Irrigation District customer account base is expected to double by the year 2020.

| Number of Connections by Type | | | | | |
|-------------------------------|---------------|---------------|---------------|---------------|---------------|
| Customer type | 2000 | 2005 | 2010 | 2015 | 2020 |
| Res. Single Family | 28,067 | 32,500 | 37,600 | 43,500 | 50,300 |
| Res. Multi-Family | 948 | 1,110 | 1,270 | 1,470 | 1,700 |
| Comm./Industrial | 1,140 | 1,320 | 1,530 | 1,770 | 2,050 |
| Recycled | 287 | 3,200 | 7,100 | 9,600 | 10,000 |
| Landscape/Rec. | 93 | 105 | 120 | 140 | 160 |
| Agriculture | 356 | 390 | 420 | 460 | 500 |
| Wholesale | 9 | 10 | 10 | 11 | 12 |
| | 30,900 | 38,625 | 48,050 | 56,951 | 64,722 |

| Past, Current and Projected Water Use 2000 – 2020 | | | | | |
|---|---------------|---------------|---------------|---------------|---------------|
| Acre-Feet Per Year | | | | | |
| Customer type | 2000 | 2005 | 2010 | 2015 | 2020 |
| Res. Single Family | 16,840 | 19,500 | 22,600 | 26,100 | 30,180 |
| Res. Multi-Family | 1,554 | 1,800 | 2,100 | 2,200 | 2,790 |
| Comm./Industrial | 2,633 | 3,050 | 3,550 | 4,100 | 4,750 |
| Recycled | 3,164 | 4,500 | 6,000 | 6,900 | 7,000 |
| Landscape/Rec. | 1,575 | 1,620 | 1,660 | 1,710 | 1,760 |
| Agriculture | 6,120 | 6,700 | 7,200 | 7,900 | 8,600 |
| Wholesale | 4,829 | 5,800 | 6,560 | 7,300 | 8,080 |
| | 36,745 | 42,970 | 49,670 | 56,210 | 63,160 |

| Projected Water Supply and Demand Comparison | | | | | |
|--|--------|--------|--------|--------|--------|
| 2000 – 2020 | | | | | |
| (Acre-Feet Per Year) | | | | | |
| | 2000 | 2005 | 2010 | 2015 | 2020 |
| Supply totals | 47,930 | 78,890 | 81,090 | 82,290 | 82,390 |
| Demand Totals | 36,745 | 42,970 | 49,670 | 56,210 | 63,160 |
| Difference | 11,185 | 35,920 | 31,420 | 26,080 | 19,230 |

The total potential demand for the District is calculated using a 5-year average of consumption. As of December, 2000, the total potential demand was 38,437 AF. This included 30,521 AF of active demand; 2,650 AF of latent demand; and 5,266 AF of other system demands that includes unaccounted-for water and beneficial uses.

The following statement was taken from the January 2001, Urban Water Management Plan Update. The projections on supply and demand have exceeded the original forecast.

“In comparing past, current and projected water supply and demand, EID has sufficient water to meet its customers needs through about 2007-2010. This statement was made assuming no additional water sources and projected water demands. As the water supply projections show, if the current effort by the District to obtain the 17,000 AF from the El Dorado Project, the 7,500 AF in a new USBR water service contract at Folsom Lake, and the 4,560 AF from the re-diversion of existing water rights is successful, the District should have adequate water supplies through 2020.”

This program is intended to incorporate important new resource conservation technologies and practices with a potential to further conserve limited water and energy resources and promote opportunities for partnerships between utilities, community and vendor groups. The program is expected to generate quantifiable data regarding the monetary benefits in improved water, wastewater, recycled water and energy efficiencies.

D-2 Outreach, Community Involvement, Support, Opposition

Potential partnerships that would be enhanced by this program include local, municipal, educational, tribal, retail and regional support. The goal is to increase cooperation and coordination with every resource conservation program, encouraging alliances between community groups, City and County government, retail businesses, local plumbing firms, commercial equipment vendors and environmental groups. The sharing of information through these projects could collectively expand new water conservation efforts and programs as well as assist in developing new marketing and incentive strategies. This program is expected to have significant benefits by enhancing public education with the communications of technological advances. There are many lessons that could be learned such as equipment service life, return on water and energy conservation investment, updates and review of regulatory issues, and performing similar installations that could increase the speed at which new or additional programs may be implemented.

Application Part E—Water Use Efficiency Improvements and Other Benefits

E-1 Water Use Efficiency Improvements

The objective of the proposed program is to replace existing water-fed urinals with newer technology waterless urinals in the CII sector and to replace high-flow low-efficient pre-rinse spray nozzles used in the food service industry with new low-flow high-efficient models. These projects meet the universal goal of the CALFED Program by reducing water consumption in order to create water supply reliability for the future. Reductions in water demands over time translate into the more efficient use of water and the need for less water over time. The beneficiary would be the South Fork of the American and Cosumnes River systems that eventually benefit the Bay/Delta.

E-2 Other Project Benefits

This proposal brings innovative water saving products to the public, outside organizations and agencies in a positive and creative outreach to all segments of customers. The spray nozzle replacement program will result in gas or electric savings, depending upon the source of the hot water used. Customer paybacks will be immediate and an average customer may save up to \$450 annually on their utility bills. The zero-water consumption urinal replacement program reduces the amount of demand on EID's wastewater treatment plants as well as conserving the energy usage that ultimately reduces overall costs to the District and its customers.

Application Part F – Economic Justification: Benefits to Costs

F-1 Net Water Savings

An average annual water savings of 30,000 gallons per year for one waterless urinal was used for calculation purposes. It is anticipated that 900 CII urinal retrofits will result in a projected cumulative water savings of 1,596 AF of the estimated 20-year life of a toilet.

A conservative average daily savings of 200 gallons for one low-flow pre-rinse spray nozzle was used for calculation purposes. It is anticipated that 150 CII nozzle retrofits will result in a projected cumulative water savings of 198 AF for the estimated 7-year life of a food industry pre-rinse spray nozzle.

The total cumulative water savings of 1,794 AF over a 20-year span at today's cost of \$1,027 would be \$1,842,430. The avoided cost over a 20-year period would be \$53,964 when using today's rate of \$30.08/AF.

F-2 Project Budget and Budget Justification

The budget for the program is listed in the tables below. The total cost for the program is \$365,000. EID is expecting to absorb a large portion of the labor costs for processing each voucher form. This includes administration, promotion and outreach, receive customer inquiries, mail voucher forms, receive completed forms, verify customer status and forms information, prepare check requests, mail cover letter and check to customer, enter data into the database and program reporting. This involves the Water Conservation Coordinator, the Water Efficiency Representative and Water Auditor. The labor cost share is estimated at \$68,000 or 20%. The total requested from Proposition 13 funding is \$297,000.

1) CII Zero-Water Consumption Urinal Replacement Project

| Budget Item | Retrofit Avg \$ | Total Cost Est. 900 Urinals 300 Per Year | EID Cost Share | Funding |
|--|-----------------|--|-----------------------|------------------------|
| Overhead | \$6 | \$5,400 | \$5,400 | 0 |
| Salaries | \$34 | \$30,600 | \$30,600 | 0 |
| Benefits | \$17 | \$15,300 | \$15,300 | 0 |
| Supplies | \$12 | \$10,800 | 0 | \$10,800 |
| Equipment | 0 | 0 | 0 | |
| Professional Services (Plumber&Urinal) | \$300 | \$270,00 | 0 | \$270,000 |
| Travel | 0 | 0 | 0 | |
| Total | \$369 | \$332,100 | \$51,300 (15%) | \$280,800 (85%) |

The waterless urinal project budget's professional service cost is a conservative estimate for the price of \$300. This includes the cost of the urinal and retrofit. The salary and benefits costs assume labor of 1.5 hours per participating customer. This includes the labor for marketing the program, pre and post inspections, and labor coordinating the project with the plumbers. The supplies include the costs for voucher forms designed for this project, outreach advertising, marketing material printing and postage.

2) CII Low-Flow Pre-Rinse Spray Nozzle Replacement Project

| Budget Item | Retrofit Avg \$ | Total Cost Est. 150 Spray Nozzles 50 Per Year | EID Cost Share | Funding |
|--------------|-----------------|---|------------------------|------------------------|
| Overhead | \$12 | \$1,780 | \$1,780 | |
| Salaries | \$59 | \$8,900 | \$8,900 | |
| Benefits | \$29 | \$4,450 | \$4,450 | |
| Supplies | \$20 | \$3,000 | | \$3,000 |
| Equipment | \$75 | \$11,250 | | \$11,250 |
| Labor | \$7 | \$1,050 | | \$1,050 |
| Travel | \$15 | \$2,250 | \$2,250 | |
| Total | \$217 | \$32,680 | \$17,380 53% | \$15,300 47% |

The item in the low-flow pre-rinse nozzle project's budget is a conservative estimate of the equipment and labor costs for the price of \$82 per unit installed. The labor cost assumes 10 minutes per participating customer. The supplies include the costs for voucher forms designed for this project, outreach advertising, marketing material printing and postage.

F-3 Economic Efficiency

Replacing 900 CII water-fed urinals with zero-water consumption urinals and 150 high-flow pre-rinse spray nozzles with less than 1.6gpm pre-rinse spray nozzles in the food service industry will create an estimated 103,000 gallons of water savings per day and approximately 38,000,000 gallons or 117AF per year. In the first year of the program the water saved is estimated at 39AF and the second year is estimated at 78AF. The third year would be 117AF and would continue at this rate through year seven, then lower to 84AF per year through year 20. The overall projected savings would be 1,794 AF over the life of the program.

This grant will allow CII customers the opportunity to participate in this water efficiency program. Under the CII waterless urinal replacement program, a customer will receive an estimated annual water cost savings of \$31 and sewer commodity charge savings of \$157 totaling \$3,700 over the 20 year life of the waterless urinal. Under the CII low-flow pre-rinse spray nozzle replacement program, a customer will receive an estimated annual water cost savings of \$77 and a sewer commodity charge savings of \$374 for a total savings of \$3,157 over the estimated 7-year life of a low-flow spray nozzle.

The District benefits from a reduction in water demands, a goal of its Water Efficiency Program. A reduction in demand translates to reduced water diversions from both the South Fork American and Cosumnes River systems. Reduced water diversions mean a reduced requirement for water treatment and transmission. The cost to divert, treat and transmit water in the District costs approximately \$321 per AF. The 117AF of water saved after two years saves the District \$37,557 in water costs. In 20 years the cost of the water saved by the program is approximately \$676,000.

The District also benefits from reduced wastewater flows to its wastewater treatment plants and the associated costs of treatment. The cost to transmit, treat and discharge or recycle the water costs \$1,393 per AF. The District's 20-year savings is \$2,500,000.

Appendix- Benefit/Cost Analysis Tables

Table 1: Capital Costs

Table 2: Annual Operations and Maintenance Costs

Table 3: Total Annual Costs

Table 4a: Water Supply Benefits: Avoided Cost of Current Supply Sources

Table 4b: Water Supply Benefits: Alternative Cost of Future Supply Sources

Table 4c: Water Supply Benefits: Water Supplier Revenue (Vendibility)

Table 4d: Total Water Supply Benefits

Table 5: Benefit/Cost Ratio

Table 6: Capital Recovery Factor

If Operation and Maintenance Costs or Benefits vary significantly over time, use the “Long Form” Tables provided on the website at: www.water.ca.gov.

Please contact Lorraine Marsh, DWR Economist at (916) 653-6414 or lmash@water.ca.gov if you need assistance or have any questions about the tables.

Table 1: Capital Costs

Project 1. CII Zero-Water Consumption Urinal Replacement Program

| | Capital Cost Category (a) | Cost (b) | Contingency Percent (c) | Contingency \$ (d) (bxc) | Subtotal (e) (b+d) |
|-----|--------------------------------------|-------------|-------------------------------|--------------------------------|--------------------------|
| (a) | Land Purchase/Easement | | | 0 | 0 |
| (b) | Planning/Design/Engineering | | | 0 | 0 |
| (c) | Materials/Installation | 280,800 | | 0 | 280,800 |
| (d) | Structures | | | 0 | 0 |
| (e) | Equipment Purchases/Rentals | | | 0 | 0 |
| (f) | Environmental Mitigation/Enhancement | | | 0 | 0 |
| (g) | Construction/Administration/Overhead | 51,300 | | 0 | 51,300 |
| (h) | Project Legal/License Fees | | | 0 | 0 |
| (i) | Other | | | 0 | 0 |
| (j) | Total (1) (a + ... + i) | | | | 332,100 |
| (k) | Capital Recovery Factor: use Table 6 | | | | 0.0872 |
| (l) | Annual Capital Costs (j x k) | | | | 28,959 |

Project 2. CII Low-Flow, High Efficient Pre-Rinse Spray Nozzles/Valves

| | Capital Cost Category (a) | Cost (b) | Contingency Percent (c) | Contingency \$ (d) (bxc) | Subtotal (e) (b+d) |
|-----|--------------------------------------|-------------|-------------------------------|--------------------------------|--------------------------|
| (a) | Land Purchase/Easement | | | 0 | 0 |
| (b) | Planning/Design/Engineering | | | 0 | 0 |
| (c) | Materials/Installation | 15,300 | | 0 | 15,300 |
| (d) | Structures | | | 0 | 0 |
| (e) | Equipment Purchases/Rentals | | | 0 | 0 |
| (f) | Environmental Mitigation/Enhancement | | | 0 | 0 |
| (g) | Construction/Administration/Overhead | 17,380 | | 0 | 17,380 |
| (h) | Project Legal/License Fees | | | 0 | 0 |
| (i) | Other | | | 0 | 0 |
| (j) | Total (1) (a + ... + i) | | | | 32,680 |
| (k) | Capital Recovery Factor: use Table 6 | | | | 0.1791 |
| (l) | Annual Capital Costs (j x k) | | | | 5,853 |

(1) Costs must match Project Budget prepared in Section F-2.

Table 2: Annual Operations and Maintenance Costs

| Administration (a) | Operations (b) | Maintenance (c) | Other (d) | Total (e) |
|-----------------------|-------------------|--------------------|--------------|--------------|
| | | | | |

Table 3: Total Annual Costs

Project 1. CII Zero-Water Consumption Urinal Replacement Program

| Annual Capital Costs (1) (a) | Annual O&M Costs (2) (b) | Total Annual Costs (c) (a+b) |
|---------------------------------|-----------------------------|------------------------------------|
| 28,959 | 0 | 28,959 |

Project 2. CII Low-Flow, High Efficient Pre-Rinse Spray Nozzles/Valves

| Annual Capital Costs (1) (a) | Annual O&M Costs (2) (b) | Total Annual Costs (c) (a+b) |
|---------------------------------|-----------------------------|------------------------------------|
| 5,853 | 0 | 5,853 |

(1) From Table 1 line (l)

(2) From Table 2 Total, column (e)

Table 4: Water Supply Benefits

Project 1. CII Zero-Water Consumption Urinal Replacement Program

Net water savings (acre-feet/year) **84 AF**

4a. Avoided Costs of Current Supply Sources

| Sources of Supply (a) | Cost of Water (\$/AF) (b) | Annual Displaced Supply (AF) (c) | Annual Avoided Costs (\$) (d) (b x c) |
|------------------------------|----------------------------------|---|---|
| 84 | 30.08 | | 2,527 |
| | | | |
| | | | |
| | | | |
| Total | | | 2,257 |

4b. Alternative Costs of Future Supply Sources

| Future Supply Sources (a) | Total Capital Costs (\$) (b) | Capital Recovery Factor (1) (c) | Annual Capital Costs (\$) (d) (b x c) | Annual O&M Costs (\$) (e) | Total Annual Avoided Costs (\$) (f) (d + e) |
|----------------------------------|-------------------------------------|--|---|----------------------------------|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| Total | | | | | |

(1) 6% discount rate; Use Table 6- Capital Recovery Factor

Project 1. CII Zero-Water Consumption Urinal Replacement Program

4c. Water Supplier Revenue (Vendibility)

| Parties Purchasing Project Supplies (a) | Amount of Water to be Sold (b) | Selling Price (\$/AF) (c) | Expected Frequency of Sales (%) (1) (d) | Expected Selling Price (\$/AF) (e) (c x d) | "Option" Fee (\$/AF) (2) (f) | Total Selling Price (\$/AF) (g) (e + f) | Annual Expected Water Sale Revenue (\$) (h) (b x g) |
|--|---------------------------------------|----------------------------------|--|--|-------------------------------------|---|---|
| CII Accounts | 84 | 1,027 | 100 | 1,027 | | 1,027 | 86,268 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Total | | | | | | | 86,268 |

- (1) During the analysis period, what percentage of years are water sales expected to occur? For example, if water will only be sold half of the years, enter 50% (0.5).
- (2) "Option" fees are paid by a contracting agency to a selling agency to maintain the right of the contracting agency to buy water whenever needed. Although the water may not be purchased every year, the fee is usually paid every year.

4d: Total Water Supply Benefits

| | |
|---|--------|
| (a) Annual Avoided Cost of Current Supply Sources (\$) from 4a, column (d) | 2,257 |
| (b) Annual Avoided Cost of Alternative Future Supply Sources (\$) from 4b, column (f) | |
| (c) Annual Expected Water Sale Revenue (\$) from 4c, column (h) | 86,268 |
| (d) Total Annual Water Supply Benefits (\$) (a + b + c) | 88,525 |

Table 4: Water Supply Benefits

Project 2. CII Low-Flow, High Efficient Pre-Rinse Spray Nozzles/Valves
 Net water savings (acre-feet/year) **33 AF**

| Sources of Supply (a) | Cost of Water (\$/AF) (b) | Annual Displaced Supply (AF) (c) | Annual Avoided Costs (\$) (d) (b x c) |
|------------------------------|----------------------------------|---|---|
| 33 | 30.08 | | 993 |
| | | | |
| | | | |
| | | | |
| Total | | | 993 |

4b. Alternative Costs of Future Supply Sources

| Future Supply Sources (a) | Total Capital Costs (\$) (b) | Capital Recovery Factor (1) (c) | Annual Capital Costs (\$) (d) (b x c) | Annual O&M Costs (\$) (e) | Total Annual Avoided Costs (\$) (f) (d + e) |
|----------------------------------|-------------------------------------|--|---|----------------------------------|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| Total | | | | | |

(1) 6% discount rate; Use Table 6- Capital Recovery Factor

Project 2. CII Low-Flow, High Efficient Pre-Rinse Spray Nozzles/Valves

4c. Water Supplier Revenue (Vendibility)

| Parties Purchasing Project Supplies (a) | Amount of Water to be Sold (b) | Selling Price (\$/AF) (c) | Expected Frequency of Sales (%) (1) (d) | Expected Selling Price (\$/AF) (e) (c x d) | "Option" Fee (\$/AF) (2) (f) | Total Selling Price (\$/AF) (g) (e + f) | Annual Expected Water Sale Revenue (\$) (h) (b x g) |
|--|---------------------------------------|----------------------------------|--|--|-------------------------------------|---|---|
| CII Accounts | 33 | 1,027 | 100 | 1,027 | | 1,027 | 33,891 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Total | | | | | | | 33,891 |

- (1) During the analysis period, what percentage of years are water sales expected to occur? For example, if water will only be sold half of the years, enter 50% (0.5).
- (2) "Option" fees are paid by a contracting agency to a selling agency to maintain the right of the contracting agency to buy water whenever needed. Although the water may not be purchased every year, the fee is usually paid every year.

4d: Total Water Supply Benefits

| | |
|---|--------|
| (a) Annual Avoided Cost of Current Supply Sources (\$) from 4a, column (d) | 993 |
| (b) Annual Avoided Cost of Alternative Future Supply Sources (\$) from 4b, column (f) | |
| (c) Annual Expected Water Sale Revenue (\$) from 4c, column (h) | 33,891 |
| (d) Total Annual Water Supply Benefits (\$) (a + b + c) | 34,884 |

Table 5: Benefit/Cost Ratio

Project 1. CII Zero-Water Consumption Urinal Replacement Program

| | |
|---------------------------|--------|
| Project Benefits (\$) (1) | 88,525 |
| | |
| Project Costs (\$) (2) | 28,959 |
| | |
| Benefit/Cost Ratio | 3.06 |
| | |

(1) From Tables 4d, row (d): Total Annual Water Supply Benefits

(2) From Table 3, column (c) : Total Annual Costs

Project 2. CII Low-Flow, High Efficient Pre-Rinse Spray Nozzles/Valves

| | |
|---------------------------|--------|
| Project Benefits (\$) (1) | 34,884 |
| | |
| Project Costs (\$) (2) | 5,853 |
| | |
| Benefit/Cost Ratio | 5.96 |
| | |

(1) From Tables 4d, row (d): Total Annual Water Supply Benefits

(2) From Table 3, column (c) : Total Annual Costs

Table 6: Capital Recovery Factor

(Use to obtain factor for Table 1, Line k or Table 4b, Column (c))

| Life of Project (in years) | Capital Recovery Factor |
|----------------------------|-------------------------|
| 7 | 0.1791 |
| 8 | 0.1610 |
| 9 | 0.1470 |
| 10 | 0.1359 |
| 11 | 0.1268 |
| 12 | 0.1193 |
| 13 | 0.1130 |
| 14 | 0.1076 |
| 15 | 0.1030 |
| 16 | 0.0990 |
| 17 | 0.0954 |
| 18 | 0.0924 |
| 19 | 0.0896 |
| 20 | 0.0872 |
| 21 | 0.0850 |
| 22 | 0.0830 |
| 23 | 0.0813 |
| 24 | 0.0797 |
| 25 | 0.0782 |
| 26 | 0.0769 |
| 27 | 0.0757 |
| 28 | 0.0746 |
| 29 | 0.0736 |
| 30 | 0.0726 |
| 31 | 0.0718 |
| 32 | 0.0710 |
| 33 | 0.0703 |
| 34 | 0.0696 |
| 35 | 0.0690 |
| 36 | 0.0684 |
| 37 | 0.0679 |
| 38 | 0.0674 |
| 39 | 0.0669 |
| 40 | 0.0665 |
| 41 | 0.0661 |
| 42 | 0.0657 |
| 43 | 0.0653 |
| 44 | 0.0650 |
| 45 | 0.0647 |
| 46 | 0.0644 |
| 47 | 0.0641 |
| 48 | 0.0639 |
| 49 | 0.0637 |
| 50 | 0.0634 |

Appendix I

AUTHORIZATION TO SIGN GRANT APPLICATIONS

Appendix II

RESUME

DEE BROOKSHIRE, MBA, CGFM

Director of Finance and Management Services

Appendix III

LETTERS OF SUPPORT

MARTHA R. (DEE) BROOKSHIRE, MBA, CGFM

Director of Finance and Management Services El Dorado Irrigation District

Dee graduated from California State University, Sacramento with a Bachelors Degree in Finance and Economics, and from the University of Nevada at Reno with a Masters of Business Administration Degree. The Association of Government Accountants professionally certifies her as a Certified Government Financial Manager (CGFM). Dee is also a four-time recipient of the award for excellence in financial reporting from the Government Finance Officers Association (GFOA)

Her professional experience covers a full range with more than seventeen years of public agency employment at the Special District level, including fourteen years at the senior management level as Administrative Manager and Water Conservation Manager for San Juan Water District, and Controller/Treasurer (CFO) for Tahoe City Public Utility District before joining the El Dorado Irrigation District in March, 2002.

While at San Juan Water District, Dee also served on the Board of Directors of the WEL (Water Efficient Landscape) Garden Foundation and was directly involved in the development of that project. Dee also served on the AWWA Water Conservation Subcommittee and assisted in the development of the certification program for water conservation professionals.

Her strengths are in her extensive education and experience in the areas of finance, accounting, regulatory compliance, human resource management, information systems management, and water conservation programs for public agencies.

Dee is a past president of the Sacramento Area Water Works Association (SAWWA) and has been affiliated for many years with the American Water Works Association (AWWA), the Association of California Water Agencies (ACWA), and the California Society of Municipal Finance Officers (CSMFO).